

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-22-15  
Relating to Certification of New Off-Road Compression-Ignition Engines

PERKINS ENGINES COMPANY LTD.

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and emission control system produced by the manufacturer are certified as described below for use in off-road equipment:

Model Year: 2001

Typical Equipment Usage: Other Industrial Equipment

Fuel Type: Diesel

<u>Engine Family</u>	Engine Displacement <u>(liters)</u>	Useful Life <u>(hours)</u>	Emission Control Systems and Special Features
1PKXL05.9YK1	5.9	8000	Direct Diesel Injection Turbocharger Charge Air Cooler Smoke Puff Limiter

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The exhaust emission certification standards and certification values for hydrocarbons (HC), oxides of nitrogen (NO<sub>x</sub>), or non-methane hydrocarbons plus oxides of nitrogen (NMHC+NO<sub>x</sub>), carbon monoxide (CO), and particulate matter (PM) (units are expressed in grams per kilowatt-hour (g/kw-hr)), and the opacity-of-smoke certification standards and certification values in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family are as follows (Title 13, California Code of Regulations, Section 2423):

<u>Engine Power Rating (kw)</u>	<u>Emission Standard Category</u>		<u>Exhaust Emissions (g/kw-hr)</u>					<u>Smoke Opacity (%)</u>		
			<u>HC</u>	<u>NO<sub>x</sub></u>	<u>NMHC+NO<sub>x</sub></u>	<u>CO</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
37≤KW<130	Tier 1	Standard	N/A	9.2	N/A	N/A	N/A	20	15	50
130≤KW<225	Tier 1	Standard	1.3	9.2	N/A	11.4	0.54	20	15	50
All Above		Certification	0.2	7.1	--	0.6	0.23	4	2	9

BE IT FURTHER RESOLVED: That the listed engine models also comply with "Emission Control Labels— 1996 and Later Off-Road Compression-Ignition Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Sections 2425 and 2426).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 22<sup>nd</sup> day of January 2001.

A handwritten signature in black ink, appearing to read "R. B. Summerfield", is written over a horizontal line.

R. B. Summerfield, Chief  
Mobile Source Operations Division

ATT. HMENT

## Engine Model Summary Form

Manufacturer: Perkins Engines Company Ltd

Engine category: Nonroad CI

EPA Engine Family: 1PKXL05.9YK1

Mfr Family Name: AS EPA

Process Code: New Submission

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1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
50 States								
	1936/2200	171.8 @ 2200	96	70.1	476.5 @ 1400	105	48.5	SPL, TAW, DDI
	1936/2300	175.7 @ 2300	95	72.1	476.5 @ 1400	105	48.5	SPL, TAW, DDI
	1936/2400	179.3 @ 2400	94	74.4	476.5 @ 1400	105	48.5	SPL, TAW, DDI
	1936/2500	180.0 @ 2500	93	76.8	476.5 @ 1400	105	48.5	SPL, TAW, DDI
	Caterpillar 3056	171.8 @ 2200	96	70.1	476.5 @ 1400	105	48.5	SPL, TAW, DDI
	Caterpillar 3056	175.7 @ 2300	95	72.1	476.5 @ 1400	105	48.5	SPL, TAW, DDI
	Caterpillar 3056	179.3 @ 2400	94	74.4	476.5 @ 1400	105	48.5	SPL, TAW, DDI
	Caterpillar 3056	180.0 @ 2500	93	76.8	476.5 @ 1400	105	48.5	SPL, TAW, DDI
	1937/2200	165.3 @ 2200	90	65.3	472.0 @ 1300	104	44.6	SPL, TAW, DDI
	1937/2300	168.6 @ 2300	88	66.7	472.0 @ 1300	104	44.6	SPL, TAW, DDI
	1937/2400	171.5 @ 2400	87	68.6	472.0 @ 1300	104	44.6	SPL, TAW, DDI
	1937/2500	170.0 @ 2500	86	70.9	472.0 @ 1300	104	44.6	SPL, TAW, DDI
	1930/2000	164.0 @ 2000	92.5	61.0	489.0 @ 1400	96	44.3	SPL, TAW, DDI
	1930/2100	163.0 @ 2100	90.6	62.8	489.0 @ 1400	96	44.3	SPL, TAW, DDI
	1930/2200	160.0 @ 2200	86.5	62.8	489.0 @ 1400	96	44.3	SPL, TAW, DDI
	1956/2200	160.9 @ 2200	80	58.0	416.7 @ 1400	85	39.2	SPL, TAW, DDI